

8600091

TO ALL TO WHOM THESE; PRESENTS; SHAME, COME;

Colhereus. There has been presented to the

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLI-CANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EX-UDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT ETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT T. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'78002A'

In Testimony Manercof, I have hereunto set my hand and caused the seal of the Plant Tariety Protection Office to be affixed at the City of Washington, D. C. 31st day of December the year of our Lord one thousand nine hundred and eighty-six.

Variety Protection Office

z.o	RAIN & SEED DIVISION	CERTIFICATE		OMB NO. 40-R3822	
NSTRUCTIONS: See Reverse, 1a. TEMPORARY DESIGNATION OF		CERTITIOATE	has been received (5	********	
VARIETY	16. VARIETY NAME		FOR OFFICIAL USE ONLY PV NUMBER		
78002A	78002A		86	3000 91	
2. KIND NAME	3. GENUS AND SPECI	ES NAME	FILING DATE	TIME -A.M.	
Corn	Zea Mays		March 24 1986 FEE RECEIVED	DATE P.M.	
4. FAMILY NAME (BOTANICAL)	5. DATE OF DETERM	INATION	s 1800.	3/24/86	
Gramineae	1981		\$ 200.55	11/5/86	
, NAME OF APPLICANT(S)	7. ADDRESS (Street at Code)	nd No. or R.F.D. No.,	City, State, and ZIP	8. TELEPHONE AREA CODE AND NUMBER	
DeKalb-Pfizer Genetics	3100 Sycamo DeKalb, IL	re Road 60115		815/756-3671	
organization: (Corporation, partner General Partnership	PERSON, FORM OF ship, association, etc.)	0. IF INCORPORAT DATE OF INCOR	ED, GIVE STATE AND PORATION	11. DATE OF INCOR- PORATION	
NAME AND MAILING ADDRESS OF A ALL PAPERS: * Waddell A. I Washington, DC 20006 (202 DeKalb, IL 60115; Dr. Jan	2) 293-7060; Eric nes H. Monroe, Le	c Christopher egal Div., Pf	sen, Esq., 310 izer Inc., 233	00 Sycamore Rd., B E. 42nd St.,	
CHECK BOX BELOW FOR EACH ATTA	CHMENT SUBMITTED: $^{ m Ne}$	w York, NY 1	0017 (212) 573	3-2369	
X 13A. Exhibit A, Origin and Br	eeding History of the Va	riety (See Section 5	2 of the Plant Variet	y Protection Act.)	
X 13B. Exhibit B, Novelty State	· · · · · · · · · · · · · · · · · · ·				
13C. Exhibit C, Objective Des	cription of the Variety (Request form from	Plant Variety Protect	ion Office.)	
X 13D. Exhibit D, Additional De		4 5 5		•• • •	
	scription of the variety.		-f (
DOES THE APPLICANT(S) SPECIFY TH SEED? (See Section 83(a), (If "Yes," ans	AT SEED OF THIS VARIES	TY BE SOLD BY VAF	RIETY NAME ONLY AS	A CLASS OF CERTIFIED	
b. DOES THE APPLICANT(S) SPECIFY TH LIMITED AS TO NUMBER OF GENERA		4c. IF "YES," TO 14I TION BEYOND B	B, HOW MANY GENER REEDER SEED?	ATIONS OF PRODUC-	
YES X NO		FOUNDATION	REGISTERED	CERTIFIED	
programme to the control of the cont	TECTION OF THIS VARIE		TRIES? TYES		
. DID THE APPLICANT(S) FILE FOR PRO name of countries and dates.)		TY IN OTHER COU	Thiese I les	NO (If "Yes," give	
. DID THE APPLICANT(S) FILE FOR PRO name of countries and dates.)		TY IN OTHER COU	Thiese T Tes	NO (If "Yes," give	
name of countries and dates.)					
DID THE APPLICANT(S) FILE FOR PRO name of countries and dates.) HAVE RIGHTS BEEN GRANTED THIS V and dates.)				NO (If "Yes," give	
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name of countries and dates.) HAVE RIGHTS BEEN GRANTED THIS Vand dates.) DOES THE APPLICANTIO AGREE TO THE OUTNAL?	VARIETY IN OTHER COUNTY IN OTH	YES YES	NO (If "Yes,"	give name of countries	
name of countries and dates.) HAVE RIGHTS BEEN GRANTED THIS Vand dates.) DOES THE APPLICANT(O) ACRES TO THE APPLICANT (O) ACRES TO THE APPLI	VARIETY IN OTHER COUNTY IN OTH	YES YES of this variety will be as may be applicable ally reproduced not	NO (If "Yes," F(s) AND ADDRESS IN e furnished with the a le. vel plant variety, and	give name of countries THE OFFICIAL application and will be believe(s) that the	
The applicant(s) declare(s) that a vial replenished upon request in accordant variety is distinct, uniform, and stable	ARIETY IN OTHER COUNTY IN OTHE	of this variety will be as may be applicable ally reproduced now 1, and is entitled to	NO (If "Yes," F(e) AND ADDRESS IN e furnished with the a le. vel plant variety, and protection under the	give name of countries THE OFFICIAL application and will be believe(s) that the provisions of Section	
The applicant(s) declare(s) that a vial replenished upon request in accordant variety is distinct, uniform, and stable 42 of the Plant Variety Act.	ARIETY IN OTHER COUNTY IN OTHE	of this variety will be as may be applicable ally reproduced not 1, and is entitled to can jeopardize prot	NO (If "Yes," Fig. NO (If "Yes,") Fig. NO (If "Yes,") Fig. NO (If "Yes,")	give name of countries THE OFFICIAL Application and will be believe(s) that the provisions of Section enalties.	
b. HAVE RIGHTS BEEN GRANTED THIS Vand dates.) DOES THE ADDLESANT(S) AGREE TO TOURNAL? The applicant(s) declare(s) that a vial replenished upon request in accordan The undersigned applicant(s) is (are) variety is distinct, uniform, and stable 42 of the Plant Variety Act. Applicant(s) is (are) informed that falls	ARIETY IN OTHER COUNTY IN OTHE	of this variety will be as may be applicable ally reproduced not 1, and is entitled to can jeopardize prot	NO (If "Yes," e furnished with the ale. vel plant variety, and protection under the	give name of countries THE OFFICIAL Application and will be believe(s) that the provisions of Section enalties.	

Exhibit A. Origin and Breeding History of Dent Corn Inbred 78002A

- Summer 1977: The cross B73(Iowa Stiff Stalk Synthetic) x A634

 (Mt42 x B14 BC3) was made at Dayton, Iowa. S0

 generation seed from the harvested ears was
 bulked. (1977 Nursery cross number 1670 x NC69.

 B73 was row 1670 and A634 was row NC69).
- Winter 1977: Seed of the SO generation cross was sent to
 Homestead, Florida, for self pollination. All
 harvested ears were returned to Dayton, Iowa,
 shelled and the SI generation seed bulked.

 (1977 Winter nursery row number 1897).
- Summer 1978: The S1 generation seed was planted at Dayton,

 Iowa, in a single row and the plants were self

 pollinated. Three self pollinated ears (S2

 generation seed) were harvested, shelled

 separately, and the S2 seed maintained separately.

 (1978 Nursery row number 4767).
- Winter 1978: S2 generation seed of ear number one (of three harvested) was planted at Homestead, Florida, in a five row block and the plants self pollinated. Five self pollinated ears were harvested and returned to Dayton, Iowa. Seed of each ear was shelled separately and the S3 generation seed maintained separately. (1978 Winter nursery rows 962-966).
- Summer 1979: S3 generation seed of ear number one (of the five harvested) was planted at Dayton, Iowa, in a two row block and the plants self pollinated. Three self pollinated ears were harvested, shelled separately, and the S4 generation seed maintained separately. (1979 Nursery rows 4085-4086).

Winter 1979: S4 generation seed of ear number two (of the three harvested) was planted at Homestead, Florida, in a single row and the plants self pollinated. One self pollinated ear was harvested and returned to Dayton, Iowa, and the S5 generation seed shelled and maintained. (1979 Winter nursery row 83).

Summer 1980: S5 generation seed from the single ear was planted at Dayton, Iowa, in a single row and the plants self pollinated. Three self pollinated ears were harvested, shelled separately, and the S6 generation seed maintained separately. (1980 Nursery row 3083). The seed from ear number one was coded 78002A. The complete selfing pedigree of 78002A at the S6 generation was S6-1-1-2-1-1.

Winter 1980: S6 generation seed of 78002A was planted at Homestead, Florida, and the plants self pollinated. Fourteen ears were harvested, returned to Dayton, Iowa, and the shelled seed bulked. (1980 Winter nursery row 431).

Summer 1981
to Present: A pure source of 78002A has been maintained by
self pollinating and bulking seed from selected
ears from each generation.

The initial cross of B73 x A634 and the selection in each of the segregating generations up to and including the coding of 78002A was made by Dr. M.F. Lindsey.

Applicant

78002A Exhibit A, Appendium I

1025 DAK ST DEKALB IL 60115

TEST Date DECEMBER 15, 1983

Test No. 409076

78002A

Lot No. 27N146 TD.

Kind & Variety (Producers Declaration)

FOUNDATION

ER212

CORN

F5

THIS SAMPLE MEETS CERTIFICATION REQUIREMENTS BASED ON SOURCE OF SEED. FIELD INSPECTION AND LABORATORY ANALYSIS

GERMINATION REPORT: 400 Seeds

Germination	% Strong		% C	Cold Test %
Hard Seed	% Pod &	Stem Blight	% A	N-A Test %
Dead Seed	% Other [Diseases	% т	etrazolium %

PURITY REPORT:

		사람들은 사람들이 가장 보고 있다면 하는 사람들이 되었다. 그는 사람들이 되었다면 하는 사람들이 얼마나 되었다. 지수는 사람들이 되었다.
Pure S	eed 99.82 %	Test Weight 58.80 LBS
Weed S	Seeds •00 %	
Other	Crop Seeds .00 %	Moisture 8-00 %
Total I	nert Matter •18 %	그리 하시 하고 하는 이 그는 그리는 그를 모르겠다. [편집]
Broken	Seed -17 %	Total Weight of Sample Examined:500.00
Other I	Inert -01 %	
	한 계속한 경험에 다른 문화를 받아 된 것이 같은 것이다. 그런 것이 있다. 그렇게 있습니다.	Dockage from 1,000 grams:

Noxious Weeds	La contraction of the contractio
NONE FOUND	Other Weed Seeds NONE FOUND
Other Crop Seeds	Inert Matter
NONE FOUND	BROKEN SEED CHAFF

EMARKS:

This certifies that the sample of seed submitted of the lot designated above has been analyzed in accordance with the RULES FOR SEED TESTING AS ADOPTED BY THE ASSOCIATION OF OFFICIAL SEED ANALYSTS.

VIGOR TESTING INFORMATION CANNOT BE USED FOR LABELING PURPOSES.

ILLINOIS CROP IMPROVEMENT ASSOCIATION, INC.

508 South Broadway, Urbana, Illinois 61801 Telephone: 217-367-4053

Registered Seed Technologist

Manager

DECD FEB 1 4 1985 7

M 3-0881

Exhibit B. Novelty Statement

78002A is a yellow dent corn inbred line derived from a single cross (B73 x A634). The public line that is most similar to 78002A is A634.

A634Ht is the single gene resistant to race 1 of Helminthosporium Turcicum. 78002A is statistically different from A634Ht in leaf angle from the stalk (23.7° vs 49.7°), ear height (90 vs 101) and ear weight (83 vs 75). (See Exhibit B, Appendium I). Additional distinguishing difference is the cob color. The cob color of 78002A is brown and the cob color of A634 is red. (See Exhibit B, Appendium II).

78002A

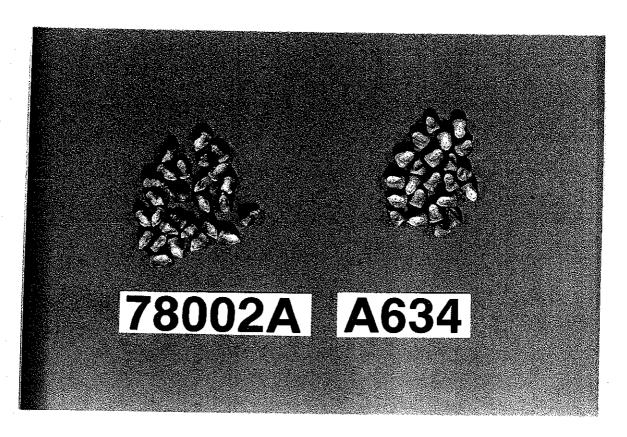
Exhibit B. Novelty Statement Appendium I.

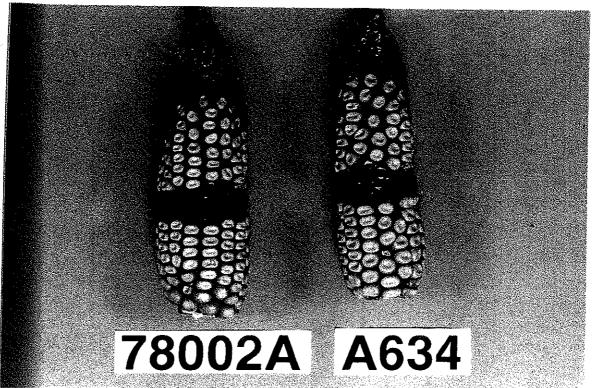
78002A vs. A634Ht

Plant and Ear Characteristics	78002A	A634Ht	Testing Hypothesis $H_0: \mathcal{M}_1 = \mathcal{M}_2$ $H_a: \mathcal{M}_1 \neq \mathcal{M}_2$
1. Leaf angle from the stalk (°)	23 . 7°	49 . 7°	Sig.(% = 0.1)
2. Ear height (cm)	90	101	Sig.(4 = 0.1)
3. Ear Diameter (mm)	41	37	Sig.(< = 0.1)
4. Ear weight (gm)	83 	75	Sig.(% = 0.1)

¹⁾ n, + n2

²⁾ Detailed calculations are available.





78002A and A634 have a dent kernel. The cob color of 78002A is brown and the cob color of A634 is red.

FORM GR-470-28 (2-15-74)

UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE GRAIN DIVISION HYATTSVILLE, MARYLAND 20782

EXHIBIT C (Corn)

OBJECTIVE DESCRIPTION OF VARIETY

CORN (ZEA MAYS)

78002A

NAME OF APPLICANT(S)	FOR OFFICIAL USE ONLY
DeKalb-Pfizer Genetics	P VPO NUMBER
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)	8600091
3100 Sycamore Road	VARIETY NAME OR TEMPORARY DESIGNATION
DeKalb, IL 60115	
Place the appropriate number that describes the varietal character of this variety in the Place a zero in first box (e-s- 0 8 9 or 0 9) when number is either 99 or less or	9 or less.
1. TYPE:	
2 1=SWEET 2=DENT 3=FLINT 4=FLOUR 5=PG	OP 6 = ORNAMENTAL
2. REGION WHERE BEST ADAPTED IN THE U.S.A.:	
1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 5 = SOUTHCENTRAL 6 = SOUTHWEST 7 = MOST REGIONS	4 = SOUTHEAST
	omments" (pg. 3) state how
	s were calculated)
9 2 DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK 1 5	8 7 HEAT UNITS
DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY	HEAT UNITS
6 1 DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE 1 2	2 5 HEAT UNITS
4. PLANT:	
2 0 7 CM. HEIGHT (To tassel tip)	9 0 CM, EAR HEIGHT (To base of top ear)
terrent de la companya del companya de la companya della companya	
1 3 CM. LENGTH OF TOP EAR INTERNODE	
Number of Tillers: Number of Ears Per Stalk:	
1 1=NONE $2=1-2$ $3=2-3$ $4=>3$ 1 1=SINGLE 2	SLIGHT TWO-EAR TENDENCY
3 = STRONG TWO	EAR TENDENCY 4 = THREE-EAR TENDENCY
Cytoplasm Type:	
	(Omenius)
1 = NORMAL 2 = "T" 3 = "S" 4 = "C" 5 = OTHER	(Sресіту)
5. LEAF (Field Corn Inbred Examples Given):	
Color:	
1 = LIGHT GREEN (HY) 2 = MEDIUM GREEN (WF9) 3 = DARK GRE	EN (B14) 4 = VERY DARK GREEN (K166
대한 18 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	
Angle from Stalk (Upper half): Sheath Pubscence:	
$1 = <30^{\circ}$ $2 = 30-60^{\circ}$ $3 = >60^{\circ}$ $2 = 1 = LIGHT (3 = HEAVY)$	
Marginal Waves: Longitudinal Creases:	
2 1 = NONE (HY) 2 = FEW (WF9) 3 = MANY (OH7L) 1 1 = ABSENT	(OH51) 2 = FEW (OH56A)
3 = MANY (PA11)
er ja ver Width: The Length: The land of the land o	
0 7 CM. WIDEST POINT OF EAR NODE LEAF 0 9 2 CM. EA	AR NODE LEAF
2 1 NUMBER OF LEAVES PER MATURE PLANT	· · · · · · · · · · · · · · · · · · ·

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity		Kernel Type	
Plant Type	A634	Quality (Edible)	
Ear Type	B73	Usage	

REFERENCES:

U.S. Department Agriculture. Yearbook 1937.

Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous (Authors) Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Malze.Cornell A.E.S., Mem. 180. 1935.

The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.

Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.

Butler, D.R. 1954 - A System for the Classification of Corn Inbred Lines - PhD. Thesis, Ohio State University.

COMMENTS:	H_a+	Unite	Calcul	ations

GDD = Daily max. temp ($\leq 86^{\circ}$ F) + Daily min. temp. ($\geq 50^{\circ}$ F) -50°F

Exhibit D.

Additional Description of the Variety.

The isozyme analysis of 78002A and A634Ht shows genetic differences at 3 different loci: Acph - 2 vs 4, IDHB - 4 vs 6 and MDHB - 3.5 vs 6. (See Exhibit D, Appendium I).

Exhibit D.

Additional Description of the Variety.

Appendium I

Isozyme Genotypes of Selected DEKALB Parents

	Alleles Present			
LOCUS	78002A	B73Ht	A634Ht	
# of plants assayed	6	6	6	
ACPH	2	2	4 -	
ADH	4	4	4	
Cat	9	9	9	
P	6	6	6	
GOT U	4	4	4	
GOT M	4	4	4	
GOT L	4	4	4	
B-Gtu	7	7	7	
IDH A	4	4	4	
IDH B	4	4	6	
MDH A	6*	6*	6*	
MDH B	3.5	3.5	6	
MDH C	16	16	16	
MDH D	12	12	12	
MDH E	12	12	12	
PGM A	9	9	9	
PGM B	4	4	4	
PHI	5	4	5	

^{*} Allele is probably a 6 but null cannot be ruled out.

The technique of using isozymes for genotyping or "fingerprinting" is described by the following reference:

Goodman, M. M. and C. W. Stuber. 1980 Genetic identification of lines and crosses using isoenzyme electrophoresis. Proceedings of the Thirty - fifth Annual Corn and Sorghum Industry Research Conference. LAW OFFICES

Sughrue, Mion, Zinn, Macpeak & Seas

1776 K STREET, N.W.

WASHINGTON, D.C. 20006-2359

March 24, 1986

TELEPHONE (202) 293-7060

CABLE ADDRESS LEXPAT WASHINGTON

TELEX 248503

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8600091

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JOHN R. INGE#
JOHN K. DONAGHYA
RICHARD C. TURNER
KENNETH J. BURCHIEL
CHARLES S. P. GUENZER
GORDON KIT
SUSAN M. JOVANOVICH

CHARLES S. P. GUENZE GORDON KIT SUSAN M. JOVANOVICH FRANK L. BERNSTEIN MARK D. KULLER MARK BOLAND⁰ DAVID L. HOFFMAN⁰

OF COUNSEL SHELDON I. LANDSMAN, P.C. HOWARD L. BERNSTEIN, P.C. ALAN J. KASPER

EXHIBIT E

*MD; #MA; ΔVA; *PA, VA; *PA

Plant Variety Protection Office United States Department of Agriculture AMS-USDA Room 500 -- National Agricultural Library Building Beltsville, MD 20705

> Plant Variety Protection Certificate Application

> > Hybrid Inbred Corn Line 78002A

DPG 8506C

Dear Sirs:

Dr. Marvin F. Lindsey, breeder of corn line 78002A, was from 1970 through July 14, 1982, a full-time employee of Pfizer Genetics Inc. DeKalb-Pfizer Genetics, a general partnership between DeKalb AgResearch, Inc. and Pfizer Genetics, Inc., succeeded on July 14, 1982, to substantially all of the assets of Pfizer Genetics, Inc., including all of the rights to 78002A. From July 15, 1982, to the present, Dr. Lindsey has been a full-time employee of DeKalb-Pfizer Genetics.

Very truly yours,

Waddell A. Biggart

WAB/cmg